

**Carusiello, Chris**

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**From:** Kinch.Richard@epamail.epa.gov  
**Sent:** Tuesday, May 08, 2012 8:10 AM  
**To:** Schuknecht.Mark@epamail.epa.gov  
**Cc:** Rita\_Chow/DC/USEPA/US%EPA@aa.ad.epa.gov  
**Subject:** Re: Mystery case on shredded mulch playground Health impact

[REDACTED]

☐ Mark Schuknecht--05/07/2012 04:05:39 PM-- [REDACTED]

From: Mark Schuknecht/DC/USEPA/US  
To: Rita Chow/DC/USEPA/US@EPA, Richard Kinch/DC/USEPA/US@EPA  
Date: 05/07/2012 04:05 PM  
Subject: Mystery case on shredded mulch playground Health impact

[REDACTED]

Dear Members of the Ground Rubber committee

Recently Mark Schuknecht, our EPA coordinator, posted this message to the group.

To: Scrap Tire Workgroup

Following below are an inquiry, response, and follow-on inquiry. It's likely this inquirer represents concerns held widely, and others on the Scrap Tire Workgroup may have dealt with similar inquiries or may need to in the future. I'm forwarding this to the Scrap Tire Workgroup for input and any suggestions including other studies that could be referenced. This may be a topic for the Ground Rubber Committee under Jim Gilbert to take up for consideration. I hope that you will freely offer suggestions or information that would be useful in addressing this inquirer's concerns.

Original Inquiry

Dear....

I am trying to find information on the safety of recycled rubber tire mulch. There is a lot of conflicting information on the web, very few studies, and most studies examine EPDM covered mats or SBR mats, and not loose recycled tire mulch. I am very concerned about the health and safety of my son and myself. My son

Redaction Exemption 5  
Deliberative Process

started at a new school (Maplewood Elementary) this year, and prior to the start of classes, I brought him to the school playground to familiarize him with the environment. I noticed, particularly on hot days above 88 degrees, that I was having dizzy spells after watching him play for approximately 10 minutes. Each of 3 times, I would first feel dizzy, then nauseous, then develop a headache. Once I had to use my inhaler. I am very concerned about the safety of this mulch. It emits a strong odor, which worsens with increasing environmental temperature, and I am very concerned in light of my son's asthma problems as well. This Fall was his worst ever in terms of asthma attacks, for the first time ever I was summoned to the school a number of times to give him a nebulizer treatment, and I was thus forced to teach my 7-year-old son to self-administer an inhaler in case I was not able to get to school in time to help him. I also suffer from asthma, and latex allergies developed most likely as a result of my 14 years of nursing experience. Please can you tell me if there is any way to determine what if any chemicals are being emitted from the tire mulch playground at his school, and what health risks these chemicals might pose? I am to the point where I feel I may be forced to remove my son from the school if I cannot get my questions answered soon.

Mark's Response:

Dear...

I understand your concerns and hopefully the following information may be of help to you. To the best of my knowledge, the most current information is from a study of the health effects of recycled tires in playgrounds coming from the state of California. Below is a link to both their web page on the topic as well as a link to their actual report released in January 2007:

Evaluation of Health Effects of Recycled Waste Tires in Playground and Track Products  
<http://www.ciwmb.ca.gov/Publications/default.asp?pubid=1206>

And here is a study the state of California conducted specifically regarding the use of tires in playground applications. <http://www.ciwmb.ca.gov/Publications/Tires/62206013.pdf>

[http://www.rma.org/publications/scrap\\_tires/index.cfm?PublicationID=11497](http://www.rma.org/publications/scrap_tires/index.cfm?PublicationID=11497)

[https://www.rma.org/publications/scrap\\_tires/index.cfm?PublicationID=11496](https://www.rma.org/publications/scrap_tires/index.cfm?PublicationID=11496)

The Consumer Product Safety Commission has a Public Playground Safety Handbook where they do mention rubber mulch (pg. 17). <http://www.cpsc.gov/CPSCPUB/PUBS/325.pdf>

EPA has some basic information on the various applications and use of recycled tires at:  
<http://www.epa.gov/epawaste/conserve/materials/tires/index.htm>

I hope the information above is of some help and value to you and your family.

Follow-on Inquiry:

Dear...

I have looked at the CA studies, as well as EHHI's, and several other smaller studies. What I see lacking the most are latex-allergy studies in humans, studies of large sample sizes of each type and age of SBR surface (crumbs, mulch, SBR mats, EPDM covered SBR mats, old Astroturf) that look at possible emissions of dust, VOCs, PAHS, etc. and possible inhalation effects thereof, and lastly incidence reports from consumers, especially schools with synthetic playground surfaces that are in use during the summer. I do not know what that strong odor is, at my son's school it is a complaint of summer staff and some students as well, and it concerns me that it is impacting the health of the kids, my son for sure. It is very difficult to expect a child and staff to perform at their best when they are fighting headaches and/or nausea from this odor--in a way it reminds me of the effects of oil-based paint vapors. I take some consolation in the



fact that the worst odor is emitted during the summer, when not as many kids are exposed to it--our school is out for the summer, but the child care center next door does continue to use the playground. I have decided there just is not enough research out there thus far to conclusively determine whether this mulch is really safe, so I have decided to formally request that the school remove it. Regardless of what the research shows, it comes down to this for me--I feel physically ill when I supervise my son playing on this mulch, and I see my son's asthma symptoms triggered when he is playing on it. Thank you for listening to my concerns, I really do appreciate it, and I would love to hear of any future studies looking at airborne emissions, chemical identification, and health effects of this mulch.

In response, the following substantive comments were received by the next day:

Some of the people I talked with hadn't heard of the conditions they reported on playgrounds, I think the person told me this was a mulch they played on. My thinking is that these people may be super sensitive something on the playground. (tires or otherwise). The mother did mention she had a career in nursing, 10+ years, and had developed a latex allergy. They son was mentioned to be 7 years old. So maybe there's some family predisposition for this sensitivity?

Chris Newman  
U.S. EPA Region 5

Is the latex allergy mentioned by the complainant in reference to the paint on the tire chips or potentially waste latex sometimes used in tire mats? One manufacturer I know of has proposed the use of waste latex as a binding agent. I am not sure waste latex has ever been used as an ingredient on a regular basis.

Ferrella March  
Oklahoma Department of Environmental Quality

It is questions like this that always prompt me to wish that we capture the Q and add an A. To send it off to CPSC - I worry that would be lost in their agency. This is really an impact to humans, and is not so much as a "product" as reused material that EPA has oversight on. I just don't know if CPSC could help, if they have funding to do the study? Then they can help!!! CAIWB study did not look at the out gassing, which the woman said was her issue. Time to get air collectors set up and pull samples...?

Jason Harrington – FHWA

Well for a different perspective I would say this:

I have read every study that has been made public and I think every one of these questions has been studied and addressed to one extent or another. The Norway study looked at VOC's, multiple studies have looked at leaching, to my understanding latex is not an issue in tire rubber...what is lacking here is not studies but someone or ones who will take a stand. How many volumes have to be published before we say..."this topic has been studied in much depth and all studies come back with no known issues" ...I will anxiously await the NY study Jim but based on all I have read it is hard for me to imagine there will be anything substantively at issue.

David Forrester

This morning (3/25), after thinking about it for a while, and consulting with the NYS Health Dept., I came to the following initial reaction:

I'm a big fan of quick responses, but it is going to take some time to be thorough in giving appropriate guidance. I myself have developed a list of 8 follow-up questions that I will be sharing with the ground rubber

committee. Meanwhile, here is about the simplest early response we can give:

It is safe to say that there may be asthma triggers and other exposure issues at the playground unrelated to the rubber. Unless a health agency sends someone out to investigate, the issue will remain unresolved.

Personally, I think a follow-up by the local health dept. would benefit all parties involved. As far as I'm concerned the California report is still the most up to date report that dealt directly with playground material. I am unaware of any that took up where that left off. However as I type this - recall the mystery latex allergy report from Illinois? There was a relatively little-known RMA document that supported the concept that heat treating stops latex. At that point I was speculating that the lady was suffering from pollen allergens that latex-sensitive people can also react to. I.e. dust in the rubber. It's also possible that, since we don't know the source of the rubber that she also got into some actual latex. In that case the messages are: make sure you know that its heat treated rubber like tire rubber and if it is, there are other substances that latex sensitive people can react to, so check for pollen.

Another thing in playgrounds is heat mitigation. Some black playgrounds are reported to have gotten quite hot. Rubber, when done right, does a great job in fall height protection but it does require some common sense.

Jim Gilbert  
Empire State Development

I spend hours on new synthetic turf infilled fields during project closeout during the heat of the summer and have not had any strange overly strong odors either.

John J. Amato, P.E.  
JJA Sports

Enlightened from the above discussion, here are my full thoughts on this particular situation.

- 1) From the information given, we don't know much about the rubber surface. Loose granular, pour-in-place and rubber tiles are commonly used in playground applications.
- 2) Furthermore, we don't know if it's even rubber from tires. There are many sources of recycled rubber. Tires are the most common, but in many respects recycled tire rubber has been in short supply and other sources have been substituted or in some cases are even preferred (due to the ease of contaminant removal for one reason).
- 3) We don't know if the rubber has been treated in some form or another. For aesthetic reasons, rubber is commonly coated with coloring agents. Pour-in-place and tiles would also have a binding agent. Either of those could be sources of latex.
- 4) Perhaps there is a mold or mildew issue.
- 5) We don't know if the surface was treated with another chemical agent - perhaps an anti-septic was used on the surface.
- 6) Odor complaints alone are too subjective. Some people love the smell of a new car interior, others can't stand it. Personally, I like the odor of freshly dry-cleaned clothes, but there are many who don't.
- 7) Going even deeper, we don't even know if the rubber is the source of the problem. Schools use cleaning agents throughout and treat their lawns with chemicals. In general schools are getting smarter about this and using more benign products, but we don't know the specifics at this school.
- 8) There are other possible allergy sources - local pollens for instance.
- 9) Finally, this is the last of my progress so far on thinking this through, there are varying degrees of allergic reaction. A percentage of people are sensitive to specific allergens and within that group another percentage are hypersensitive. Should we stop selling peanut butter or cut down all the trees?



In summary, until the situation is fully investigated, I think removal and replacement of the playground material is over-reacting.

Jim Gilbert  
Empire State Development

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